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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,059	06/15/2006	Rene Johan Haan	TS1391 US	8848
23632	7590	07/08/2008		
SHELL OIL COMPANY P O BOX 2463 HOUSTON, TX 772522463			EXAMINER	
			CHO, JENNIFER Y	
			ART UNIT	PAPER NUMBER
			1621	
			MAIL DATE	DELIVERY MODE
			07/08/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/583,059

**Applicant(s)**

HAAN ET AL.

**Examiner**

JENNIFER Y. CHO

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **Detailed Action**

This office action is in response to Applicant's communication filed on 4/24/08.

Claims 1-20 are pending in this application.

The 35 U.S.C. 102(b) rejection has been withdrawn. Applicant has provided a convincing argument so that the reference fails to teach the present invention as set forth in claim 1. However, upon further consideration, new ground(s) of rejections are made as shown herein.

### **Claim Rejections – 35 USC 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kummer et al. (US 4,777,285).

The instant claims are drawn to the preparation of an alkyl alkenoate, by reacting a lactone and an alkyl alcohol with a strong acid catalyst and operating under continuous distillation.

Kummer et al. teaches preparation of an alkyl alkenoate, by reacting a lactone and an alkyl alcohol with a strong acid catalyst in which the reaction can be continuous

(column 2, lines 4-5), the reaction mixture is distilled and the lactone is recycled to the reaction (column 2, lines 54-56).

Kummer et al. is deficient in that it does not explicitly teach continuous distillation, the molar ratio of the lactone to the alkanol, and gamma valerolactone, which is one  $\text{CH}_2$  group from Applicant's claimed compound.

In reference Applicant's limitations for continuous distillation and the molar ratio of the lactone to the alkanol, it is the position of the Examiner that one of ordinary skill in the art, at the time of the invention, would through routine and normal experimentation determine the optimization of these limitations to provide the best effective variable depending on the results desired. Thus it would be obvious in the optimization process to optimize the distillation step and the molar ratio, particularly since Kummer et al. teaches a continuous reaction and a distillation step in which the starting material is recycled to the reaction. The Applicant does not show any unusual and/or unexpected results for the limitations stated. Note that the prior art provides the same effect desired by Applicant, the preparation of alkyl alkenoates in high yield and purity for the chemical industry.

In reference to the limitation for gamma valerolactone, in which n is 2 versus 3, it is the position of the Examiner that one of ordinary skill in the art, at the time of the invention, would through routine and normal experimentation determine the appropriate carbon chain length for the lactone. Slight variations in the alkyl chain length suggest the compounds have similar properties and utilities. "Structural relationships may provide the requisite motivation or suggestion to modify known compounds to obtain

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new compounds. For example, a prior art compound may suggest its homolog because homologs often have similar properties and therefore chemists of ordinary skill would ordinarily contemplate making them to try to obtain compounds with improved properties." (see MPEP § 2144.08c). In addition, adjacent homologues and structural isomers are generally so structurally similar that "without more" such structural similarity could give rise to prima facie obviousness (see *In re Wilder*, 563 F.2d 457, 195 USPQ 426). In the absence of unexpected results, one skilled in the art would expect that the instant claims, directed to compounds that are analogous to the compounds of Kummer et al. are prima facie obvious.

Therefore, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to use the adjacent homolog of Kummer et al.'s lactone, which is one CH<sub>2</sub> group from Applicant's gamma valerolactone. Absent any showing of unusual and/or unexpected results over Applicant's particular lactone and alkyl alkenoate, the art obtains the same effect on the compound's efficacy and utility. The expected result would be the effective synthesis of alkyl alkenoates for the chemical industry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Y. Cho whose telephone number is (571) 272 6246. The examiner can normally be reached on 9 AM - 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on (571) 272 0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer Cho  
Patent Examiner  
Art Unit: 1621

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/SHAILENDRA - KUMAR/  
Primary Examiner, Art Unit 1621